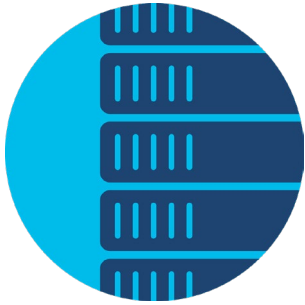




Troubleshooting Cisco Data Center Infrastructure (DCIT) v7.0

What you'll learn in this course

The **Troubleshooting Cisco Data Center Infrastructure (DCIT) v7.0** course shows you how to troubleshoot LAN, SAN, Cisco® Data Center Unified Fabric, Cisco Unified Computing System™ (Cisco UCS®), and Cisco Application-Centric Infrastructure (Cisco ACI®). You will learn methodologies and tools to identify issues that may occur in data center network architecture. You will get extensive hands-on practice troubleshooting installation, configuration and interconnectivity issues on Cisco Multilayer Director Switch (MDS) switches, Cisco Nexus® switches, Cisco Fabric Extenders (FEXs), Cisco UCS, Cisco ACI, and more. This course earns you 50 Continuing Education (CE) credits towards recertification.

This course will prepare you for the exam:

- **300-615 Troubleshooting Cisco Data Center Infrastructure (DCIT)**

Course duration

- Instructor-led training: 5 days in the classroom with hands-on lab practice
- Virtual instructor-led training: 5 days of web-based classes with hands-on lab practice
- E-learning: Equivalent of 5 days of instruction with hands-on lab practice, videos, and challenges

How you'll benefit

This course will help you:

- Learn how to deploy and troubleshoot various components of Cisco data center infrastructure to support performance, resiliency, scalability needs
- Gain knowledge and skills through Cisco's unique combination of lessons and hands-on practice using enterprise-grade Cisco learning technologies, data center equipment, and software
- Qualify for professional-level job roles
- Earn 50 CE credits toward recertification



Who should enroll

- Network designers
- Network administrators
- Network engineers
- System engineers
- Data center engineers
- Consulting systems engineers
- Technical solutions architects
- Server administrators
- Network managers
- Cisco integrators and partners

What to expect in the exam

The **300-615 DCIT** exam certifies your knowledge of troubleshooting a data center infrastructure including network, compute platforms, storage network, automation, management, and operations.

After you pass **300-615 DCIT**, you earn the **Cisco Certified Specialist - Data Center Operations** certification and you satisfy the concentration exam requirement for the **CCNP Data Center** certification.

Technology areas

- Data center

Course details

Objectives

After taking this course, you should be able to:

- Describe how to troubleshoot the data center network, troubleshooting tools and methodologies available from the Command-Line Interface (CLI) that are used to identify and resolve issues in a Cisco data center network architecture
- Identify and resolve issues that are related to: Virtual LANs (VLANs) and private VLANs (PVLANS); port channels and virtual port channels; Overlay Transport Virtualization (OTV); and Virtual Extensible LAN (VXLAN)
- Describe troubleshooting of routing protocols such as Open Shortest Path First (OSPF), Enhanced Interior Gateway Routing Protocol (EIGRP), Protocol-Independent Multicast (PIM), and LAN security features
- Identify and resolve issues that are related to a single device
- Identify and resolve issues that are related to Fibre Channel interface operation
- Identify and resolve Fibre Channel switching issues when the Cisco NX-OS Software is used in switched mode, and in N-Port Virtualization (NPV) mode
- Identify and resolve issues that are related to Fibre Channel over Ethernet (FCoE) and FCoE Initialization Protocol (FIP), including FCoE performance
- Describe Cisco UCS architecture, initial setup, tools, and service aids that are available for Cisco UCS troubleshooting and interpretation of the output
- Describe Cisco UCS configuration, Cisco UCS B-Series Blade Server operation and troubleshoot related issues
- Describe LAN, SAN, and Fibre Channel operations, including in-depth troubleshooting procedures
- Describe Cisco Integrated Management Controller (IMC) tools for validating performance and facilitating data-gathering activities for Cisco UCS C-Series server troubleshooting, and the troubleshooting approach for hardware and firmware failures

- Define the proper procedures for configuring LAN and SAN connectivity, avoiding issues with the VIC, troubleshooting connectivity issues and Cisco UCS C-Series server integration with Cisco UCS Manager
- Identify the tools, protocols, and methods to effectively troubleshoot Cisco ACI
- Describe how to troubleshoot automation, scripting tools, and programmability

Recommended knowledge and training

To fully benefit from this course, you should have the following knowledge and skills:

- Configure, secure, and maintain LAN and SAN based on Cisco Nexus and MDS switches
- Configure, secure, and maintain Cisco Unified Computing System
- Configure, secure, and maintain Cisco ACI

The following Cisco courses may help you meet these prerequisites:

- **Implementing and Administering Cisco Networking Technologies (CCNA®)**
- **Understanding Cisco Data Center Foundations (DCFNDU)**
- **Implementing and Operating Cisco Data Center Core Technologies (DCCOR)**
- **Introducing Cisco NX-OS Switches and Fabrics in the Data Center (DCINX)**
- **Configuring Cisco NX-OS Switches and Fabrics in the Data Center (DCCNX)**
- **Introducing Cisco Unified Computing System (DCIUCS)**
- **Configuring Cisco Unified Computing System (DCCUCS)**



Outline

- Describing the Troubleshooting Process
 - Troubleshooting Overview
 - Narrow Down the Cause of the Problem
- Understanding CLI Troubleshooting Tools
 - Ping, Pong, and Traceroute
 - Debugging, Event History, and System Monitoring
 - Switched Port Analyzer (SPAN) and Encapsulated Remote SPAN
 - Ethalyzer, Embedded Logic Analyzer Module (ELAM), and Data Plane Sampling Capture
 - Logging
 - Cisco Generic Online Diagnostics
 - Simple Network Management Protocol (SNMP), Cisco Embedded Event Manager (EEM), and Remote Network Monitor (RMON)
- Troubleshooting VLANs and PVLANS
 - Troubleshoot VLAN Trunking Protocol (VTP)
 - Troubleshoot Layer 2 Issues
 - VLANs and Switched Virtual Interfaces (SVIs) on Cisco Nexus Series Switches
 - Troubleshoot VLANs, PVLANS, and SVIs
 - Troubleshoot Rapid Per VLAN Spanning Tree+ (PVST+)
- Troubleshooting Port Channels and Virtual Port Channels
 - Port Channel Overview
 - Virtual Port Channel (vPC) Overview
 - Troubleshoot vPCs
 - Common vPC Issues
- Troubleshooting Cisco Overlay Transport Virtualization (OTV)
 - Cisco OTV Features
 - Common Cisco OTV Issues
 - Cisco OTV Troubleshooting
 - Hot Standby Routing Protocol (HSRP) Isolation Between Data Centers Using Cisco OTV
- Troubleshooting Virtual Extensible LAN (VXLAN)
 - VXLAN Overlay Features
 - VXLAN Multiprotocol Border Gateway Protocol (MP-BGP) Ethernet VPN
 - Common VXLAN Issues
 - VXLAN Troubleshooting

- Troubleshooting Routing and High-Availability Protocols
 - Troubleshoot Basic Routing Issues
 - Troubleshoot OSPFv2 and OSPFv3
 - Troubleshoot EIGRP
 - Troubleshoot PIM
 - Troubleshoot First Hop Redundancy Protocol (FHRP)
- Troubleshoot Data Center LAN Security
 - Troubleshoot Authentication, Authorization, and Accounting (AAA) and Role-Based Access Control (RBAC)
 - Troubleshoot First-Hop Security
 - Troubleshoot Control Plane Policing (CoPP)
 - Troubleshoot Access Control Lists (ACLs)
- Troubleshooting Platform-Specific Issues
 - Cisco Fabric Services Overview
 - Troubleshoot Cisco Fabric Services
 - Configure and Troubleshoot Configuration Profiles
 - Common Virtual Device Contexts (VDC) Issues
 - Troubleshoot VDC
 - Troubleshoot Virtual Routing and Forwarding (VRF)
 - Cisco FEX Troubleshooting
 - Troubleshoot Cisco In-Service Software Upgrade (ISSU)
- Troubleshooting Fibre Channel Interfaces
 - Fibre Channel Overview
 - Troubleshoot Fibre Channel Interfaces and Device Registration
 - Troubleshoot Fibre Channel Port Channels
 - Troubleshoot Port Security and Fabric Binding
- Troubleshooting Fibre Channel Fabric Services
 - Troubleshoot Virtual Storage Area Networks (VSANs)
 - Troubleshoot Fibre Channel Domain and Name Services
 - Troubleshoot Zoning and Fabric Merges
 - Troubleshoot Cisco Fabric Services
- Troubleshooting NPV Mode
 - N-Port ID Virtualization (NPV) and NPV Overview
 - Troubleshoot NPV Mode



- Troubleshooting FCoE
 - FCoE and FIP Overview
 - Troubleshoot FIP
 - Troubleshoot FCoE- and QoS-Related Issues
 - Troubleshoot Data Center Bridging (DCB)
- Troubleshooting Cisco UCS Architecture and Initialization
 - Troubleshoot Fabric Interconnect in Standalone and Cluster Mode
 - Troubleshoot Cisco UCS Management Access
 - Troubleshoot Cisco UCS Manager CLI
 - Troubleshoot Cisco UCS with Embedded Tools
 - Troubleshoot Cisco UCS Hardware Discovery
- Troubleshooting Cisco UCS Configuration
 - Stateless Computing
 - Troubleshoot Service Profile Association Issues Due to Unavailable Addresses
 - Other Service Profile Association Issues
 - Cisco UCS Manageability
 - Troubleshoot Authentication Failures
- Troubleshooting Cisco UCS B-Series Servers
 - Troubleshoot Cisco UCS B-Series Blade Server
 - Troubleshoot Firmware Upgrade and Operating System Drivers
 - Troubleshoot Remote Access
 - Troubleshoot Server Hardware
- Troubleshooting Cisco UCS B-Series LAN and SAN Connectivity
 - Troubleshoot Link-Level Issues
 - Troubleshoot Connectivity Issues for Specific Servers
 - Troubleshoot Intermittent Connectivity
 - Troubleshoot Disjoint Layer 2 Networks
 - Troubleshoot Redundant Connectivity
 - Troubleshoot Cisco UCS B-Series SAN Connectivity
 - Troubleshoot Directly Attached Storage
 - Troubleshoot Server Boot from SAN and iSCSI
 - Use SPAN for Troubleshooting
 - Analyze Packet Flow



- Troubleshooting Cisco UCS C-Series Servers
 - Troubleshoot Cisco UCS C-Series Initialization and Cisco IMC
 - Troubleshoot Cisco UCS C-Series Hardware and Firmware
- Troubleshooting Cisco UCS C-Series LAN and SAN Connectivity
 - Troubleshoot the Cisco UCS C-Series VIC Module and Connectivity to Cisco IMC
 - Troubleshoot Cisco UCS C-Series LAN Connectivity
 - Troubleshoot Cisco UCS C-Series SAN Connectivity
 - Use SPAN to Capture Cisco UCS C-Series Server Traffic
 - Troubleshoot Cisco UCS C-Series Boot from the Fibre Channel Logical Unit Number LUN
 - Troubleshoot Cisco UCS C-Series iSCSI Boot
- Troubleshooting Cisco UCS C-Series and Cisco UCS Manager Integration
 - Integrate Cisco UCS C-Series Servers with Cisco UCS Manager
 - Troubleshoot FEX Discovery and VIC Issues
- Exploring the Tools and Methodologies for Troubleshooting Cisco ACI
 - Troubleshoot the Fabric Discovery Process
 - Traditional Troubleshooting Methods in Cisco ACI
 - Atomic Counters, Faults, and Health Scores
 - Troubleshoot Tenant-Based Policies
 - Packet Flow Through Cisco ACI Fabric
 - Troubleshoot AAA and RBAC
- Troubleshoot Automation and Scripting Tools
 - Troubleshoot Cisco Internetwork Operating System (IOS) EEM
 - Troubleshoot the Cisco NX-OS Scheduler
- Troubleshooting Programmability
 - Troubleshoot Bash Shell and Guest Shell for NX-OS
 - Troubleshoot Representational State Transfer (REST) API, JavaScript Object Notation (JSON), and Extensible Markup Language (XML) Encodings

How to enroll

To enroll in the DCIT course or explore our larger catalog of courses on Cisco Digital Learning, contact us at <training@fastlane-mea.com>

Lab outline

- Document the Network Baseline
- Troubleshoot Rapid PVST+
- Troubleshoot Link Aggregation Control Protocol (LACP)
- Troubleshoot vPC
- Troubleshoot OTV
- Troubleshoot VXLAN
- Troubleshoot OSPF
- Troubleshoot FHRP
- Troubleshoot Cisco Fabric Services
- Troubleshoot VRF
- Troubleshoot Cisco FEX
- Troubleshoot Fibre Channel Interfaces
- Troubleshoot Fibre Channel VSANs, Zones, and Domain Services
- Troubleshoot NPV Mode
- Troubleshoot FCoE
- Troubleshoot DCB
- Troubleshoot Cisco UCS Management and Service Profile Deployment
- Troubleshoot Cisco UCS C-Series Server LAN Connectivity
- Troubleshoot Cisco UCS C-Series Server Boot from the Fibre Channel LUN
- Troubleshoot Cisco UCS C-Series Server Management Connectivity
- Troubleshoot Cisco ACI Integration with VMware vCenter
- Troubleshoot Contracts in Cisco ACI
- Troubleshoot Cisco ACI External Layer 3 Connectivity
- Troubleshoot Cisco ACI External Layer 2 Connectivity

